Saurav K. Shastri

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EDUCATION

B.E. in Electrical and Electronics Engineering

- PES Institute of Technology, Bengaluru, India. Aug 2014 – May 2018
  - Graduated *Summa Cum Laude* with cumulative GPA of 9.61/10 and ranked first in the department.

Pre University Education in Science

- Deeksha Center for Learning PU College, Bengaluru, India. Jun 2012 – May 2014
  - Graduated with Distinction with a score of 532/600 (88.67%) in Second PUC Examination.

Secondary Education

- Mirambika School For New Age, Bengaluru, India. Jun 2010 – May 20012
  - Cumulative GPA of 9.8/10.

RESEARCH INTERESTS

Signal and Image Sampling and Reconstruction, Machine Learning, Compressed Sensing, Phase Recovery, Sparse Recovery, Computational Imaging, Optimization and Inverse Problems.

RESEARCH EXPERIENCE

Project Assistant, Spectrum Lab, Department of Electrical Engineering

- Indian Institute of Science, Bengaluru, India. Jun 2018 – Present
  - Supervisors: Prof. Chandra Sekhar Seelamantula and Mr. Sunil Rudresh.
  - Project 1 : A Low-Cost, Portable, Super-Resolution Ultrasound Scanner.
  - Project 2 : Structured Nonuniform Sampling for Sub-Nyquist Radar
  - Project 1 is funded by IMPRINT, Ministry of Human Resource Development, Government of India.

Research Intern, Spectrum Lab, Department of Electrical Engineering

- Indian Institute of Science, Bengaluru, India. Jan 2018 – Jun 2018
  - Supervisors: Prof. Chandra Sekhar Seelamantula, Mr. Sunil Rudresh and Prof. Venkatesh S.
  - Project (Bachelor's Thesis): Sub-Nyquist Sampling and Reconstruction of Ultrasound Signals.

Research Assistant, Department of Mathematics

- Simon Fraser University, Burnaby, Canada. May 2017 – Aug 2017
  - Supervisor: Prof. Ben Adcock.
  - Mitacs Globalink Research Internship, Canada.
  - Project: Compressed Sensing in Parallel Image Acquisition Systems.

Undergraduate Researcher, Crucible of Research and Innovation

- PES Institute of Technology, Bengaluru, India. Jan 2017 – May 2017
  - Supervisors: Prof. Viraj Kumar and Mrs. Divya Rao.
  - Project: A Fast, Parallel Algorithm for Fully Overlapped Allan Variance and Total Variance (Paper 1).

Research Intern, Crucible of Research and Innovation

- PES Institute of Technology, Bengaluru, India. Jun 2016 – Jul 2016
  - Supervisor: Mrs. Divya Rao.
  - Project: Study and Design of Magnetorquer for Nanosatellite-PISAT (Paper 2).

PUBLICATIONS

JOURNALS / LETTERS

† Authors contributed equally.

[1] S. M. Yadav†, S. K. Shastri†, G. B. Chakravarthi, V. Kumar, A. Divya Rao and V. K. Agrawal, "A Fast, Parallel Algorithm for Fully Overlapped Allan Variance and Total Variance for Analysis and Modeling of Noise in Inertial Sensors," in *IEEE Sensors Letters*, vol. 2, no. 2, pp. 1-4, Jun 2018. doi: 10.1109/LSENS.2018.2829799.

CONFERENCES

[2] S. K. Shastri, K. Chandrashekar, S. Mishra, D. R. Gourav, J. Bhagatji, A. Divya Rao and V. K. Agrawal, "In-Orbit Performance of PISAT Detumbling and Advanced B-Dot Implementation to Tackle Challenges in Active Detumbling Magnetic Control System of Nanosatellites," in *Proc. 69th International Astronautical Congress*, Bremen, Germany, Oct 2018.

MANUSCRIPT UNDER PREPARATION

[3] S. K. Shastri, S. Rudresh and C. S. Seelamantula, "Sparse Recovery based Axial Super-Resolution in Ultrasound Imaging".

[4] S. K. Shastri, S. Rudresh and C. S. Seelamantula, “Structured Nonuniform Sampling for Sub-Nyquist Radar”.

AWARDS & SCHOLARSHIPS

INTERNATIONAL

- 2017 Globalink Research Intern Award. Jan 2017
  Mitacs Globalink, Canada.
  The Globalink Research Internship is a highly competitive internship program for international undergraduates–awarded to the top 5% of around 12,000 applicants. It is a fully funded twelve week research internship in a Canadian University.

DOMESTIC

- Institute Gold Medal in Electrical and Electronics Engineering. Sep 2018
  For obtaining first rank in the Department of Electrical and Electronics Engineering, PES Institute of Technology.
- Best Outgoing Student. Apr 2018
  Department of Electrical and Electronics Engineering, PES Institute of Technology.
- Professor MRD Merit Scholarship. 2015 – 2017
  Fall 2015 through Fall 2017, PES Institute of Technology.
  For being in the top five performers (batch of 65 students) of B.E in Electrical and Electronic. Scholarship for undergraduate studies.
- Professor C N R Rao Merit Scholarship. 2015 – 2017
  Fall 2015 through Fall 2017, PES Institute of Technology.
  For being in the top twenty percent performers (batch of 65 students) of B.E in Electrical and Electronic. Fifteen percent of tuition scholarship for undergraduate studies.

TECHNICAL PROJECTS

- Structured Nonuniform Sampling for Sub-Nyquist Radar Oct 2018 – Present
  Supervisors: Prof. Chandra Sekhar Seelamantula and Mr. Sunil Rudresh.
  Focus: Structured Nonuniform Sampling, Block Annihilation, Block Cadzow Denoising, Doppler and Delay Focusing.
- A Low-Cost, Portable, Super-Resolution Ultrasound Scanner. Jun 2018 – Present
  Supervisors: Prof. Chandra Sekhar Seelamantula and Mr. Sunil Rudresh.
  Focus: Beamforming, Compressed Sensing, Sparse Recovery, Finite-Rate-of-Innovation, Inverse Problem, Optimization.
- Sub-Nyquist Sampling and Reconstruction of Ultrasound Signals. Jan 2018 – Present
  Supervisors: Prof. Chandra Sekhar Seelamantula and Mr. Sunil Rudresh.
  Focus: Super-Resolution, Finite-Rate-of-Innovation, Sub-Nyquist Sampling, Non-Periodic Sum-of-Sincs Sampling Kernel, Sparse Recovery, Compressed Sensing.
- Compressed Sensing in Parallel Image Acquisition Systems. May 2017 – Aug 2017
  Supervisor: Prof. Ben Adcock.
  Focus: Auto-calibration of parallel Magnetic Resonance Imaging (pMRI), Compressed Sensing, reduction of biconvex problem into linear least squares problem, sparse regulariser for a standard calibrated pMRI model.

RELEVANT COURSES

Linear Algebra, Signals and Systems, Digital Signal Processing, Digital Image Processing, Speech Processing, Engineering Mathematics (I,II,III), Machine Learning (Coursera - audited), Deep Learning Specialization (Coursera - ongoing).

PROGRAMMING/ SOFTWARE

MATLAB, Python, C, Field-II Ultrasound, LaTeX.

PROFESSIONAL AFFILIATIONS & ACTIVITIES

Student Member, IEEE. 2015 – Present
Student Member, SAE India. 2016 – Present

Executive member, Electrical team, Team Haya and Team Samkaran, PES University. 2015 – 2017
Treasurer and Event Manager, IEEE Student Branch, PES University. 2016 – 2017
Member, Team PISAT, PES University. 2016

EXTRA/CO-CURRICULAR ACTIVITIES

Featured on the TV show “*Thaat Antha Heli*” where I had the opportunity to represent PISAT on DD Chandana.
Level 5 Google Guide, with over 1.1 Million views on photographs.
Winners (2015, 2016 & 2017), Molecular Murals (Painting competition using chemicals), Pravega, IISC.
Volunteer, Aatmatrisha (Techno-Cultural Fest) and The Amateur Scientist (Science Fest), PES University.

REFERENCES

Prof. Chandra Sekhar Seelemantula
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